

Preface

By the end of the century, component-based software emerged as a promising paradigm to deal with the ever increasing need for mastering systems' complexity, their evolution and reuse, and driving software engineering into sound production and engineering standards. Soon, however, it became a popular technology long before consensual definitions and principles, let alone formal foundations, have been put forward. The quest for suitable mathematical models for components, their interaction and composition, as well as for rigorous approaches to verification, deployment, testing and certification remain open research questions and challenging opportunities for formal methods. Moreover, new challenges are raised by applications to non conventional areas, such as safety-critical, mobile, and/or embedded systems.

In this context, the objective of FACS'05 was to bring together researchers in the areas of component software and formal methods to promote a deep understanding of this paradigm and its applications. In particular, the Workshop was interested in defining the common aspects of components and component-based development. The collection of papers in this volume addresses a large number of crucial issues in this effort: from *component models*, their *analysis* and *verification*, to the *semantics of interaction*, *architectural issues*, *non conventional application areas* and *case-studies*.

Organised by the International Institute for Software Technology of the United Nations University, FACS'05 was held in Macao, from the 24 to 25th October, 2005. The scientific programme included 18 regular papers and 4 invited talks, by Farhad Arbab, Paolo Ciancarini, Jifeng He and Rolf Hennicker. FACS'05 was the second in a series of workshops founded by UNU-IIST, whose first edition was held in Pisa, Italy, in September 2003, collocated with FM'03.

We would like to thank all the researchers who submitted their work to the workshop and all colleagues who served in the Programme Committee and worked very hard in a tight deadline for the review. Our gratitude extends,

of course, to the invited speakers for their willingness to come to present their research and share their own perspectives on formal methods for component software.

FACS'05 proceedings will be published in the series *Electronic Notes in Theoretical Computer Science*. We are grateful to Mike Mislove, Managing Editor of the series, for his continuing support.

Without the support of UNU-IIST, the workshop could not have happened. We would like to thank the director, Mike Reed, and the members of his staff for their great help. In particular, we would like to thank Wendy Hoi, who has put a lot of effort in the arrangement of accommodation and meals for the participants, Kitty Chan and Raymond Hoi, who have been maintaining the workshop management system, and Michelle Ho, for dealing with the online registration.

Zhiming Liu
Luís Barbosa